

## MISCELLANEOUS NOTES ON WESTERN LEPIDOPTERA

By JOHN A. COMSTOCK

*Scepsis fulvicollis* Hbn. The larva of this species was briefly described by Coquillett,<sup>1</sup> and Dyar, in 1900 records a very complete analysis of the life history.<sup>2</sup> The moth is of common occurrence in the eastern states, but it is not so generally known that it is found in the Sierras of California.



PLATE 44

Larva of *Scepsis fulvicollis* Hbn., last  
instar, enlarged x 3.

<sup>1</sup> Canad. Entom., vol. 12, p. 44, 1880, and Trans. Dept. Agr. Ill., vol. 18, ap., p. 171.

<sup>2</sup> Proc. U. S. Nat'l. Mus. XXIII, p. 264.

In late July of 1936, Mr. Lloyd Martin brought in a considerable quantity of larvae, collected in the Big Meadows, north of Mono Lake. These gave forth imagines in early August of the same year. The duration in pupa averaged about six days.

In view of the fact that no illustrations of larva or pupa of this species have been published to our knowledge, we are including reproductions of photographs on Plates 44 and 45.

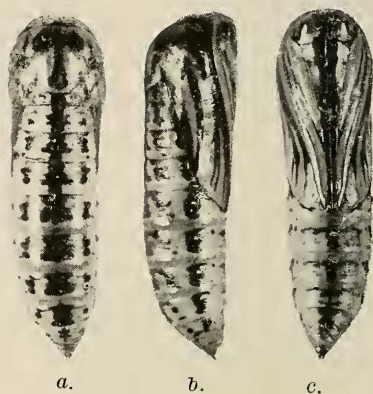


PLATE 45

Pupa of *Scepsis fulvicollis* Hbn., enlarged x 3.

a. Dorsal aspect.      b. Lateral aspect.  
c. Ventral aspect.

*Pterotaea melanocarpa* Swett. This species was described by Swett in the "Lepidopterist," vol. 1, p. 5, 1916. The holotype was taken at "Boulevard," Calif., wherever that may be. Since it was captured by G. H. Field, we suspect it is somewhere in San Diego County.

The paratype was from Julian, which is in the Cuyamaca Mountains, San Diego County. In December of the same year Barnes and McDunnough described *Pterotaea tremularia*<sup>3</sup> from Camp Baldy in the San Bernardino Mountains, Calif., which proved to be a synonym of *melanocarpa*. We have the species in considerable numbers from the Bouquet Canyon area in Los Angeles County, and have bred the larva on *Quercus*.

The imago is figured in the B. & McD. Contributions, vol. 111, (1), plate 11, fig. 4. This example is somewhat more heavily marked through the discal area of primaries than is the average, if we may judge from the illustration.

<sup>3</sup> Cont. Nat. Hist. Lep. N. Am. 111, (1) 27.

Mature larva: Cylindrical; length, 30 mm. In form it is of the usual "looper" type, with a single pair of prolegs and a pair of anal prolegs.

The body color is olive-brown, on which is superimposed numerous longitudinal cream colored wavy discontinuous lines, edged with darker brown.

Two short papilliform processes arise near the caudal end, each bearing a seta. A few short straw colored setae are scattered over the body, each one arising from a small dark papillus. These features are well brought out in the accompanying cut, Plate 46.

Spiracles, cream colored, edged with dark brown circlets and surrounded by a soiled white area. Legs and prolegs spotted; concolorous with body. Abdomen, white, with numerous longitudinal dark brown broken wavy lines.

Head, mottled cream and red-brown.



PLATE 46

Mature larva of *Pterotaeta melanocarpa* Swett,  
on oak leaf, enlarged x 3.

Pupation occurred on the floor of the breeding cage, in a loosely constructed semblance of a cocoon, in which the ground litter was incorporated.

Pupa: Length, 13 mm. Texture of surface, smooth. Color, blackish brown. No tubercles or setae occur on the surface. The cremasteric end is formed of two tapering spinous processes without hooked ends.

Larvae collected in May gave forth imagines from the middle to the end of June of the same year.

*Aethaloida packardaria* Hlst. This interesting species, formerly placed in the Genus *Hulstina* is illustrated on Plate VII, fig. 11 in Dr. McDunnough's excellent "Studies in North American Cleorini (Geometridae)," Bulletin No. 18, Department of Agriculture, Ottawa. No description or illustration of the larva occurs in the literature, to my knowledge.

In June of the present year (1937) while beating for larvae in upper Bouquet Canyon, Los Angeles County, some very interesting stick-like caterpillars were taken on *Ceanothus*, and also on *Adenostoma*. A few were raised to maturity and proved to be the above species.

A large number of geometrid larvae resemble twigs, in shape, coloration and posture, but no better example of this type of adaptation has thus far come to my knowledge. The mature larva may be described as follows:

Length, 36 mm. Color, uniform slaty gray. Cylindrical, with numerous roughened protuberances and processes.

The first two pair of legs are held close to the body. The third pair are long, and are held at right angle to the long axis of the body in such a manner as to suggest a bud or beginning of a twig.

On the fifth and seventh segments are two tubular branch-like processes (one each side of mid-dorsal area) tipped with setae.

On the sixth segment in the abdominal area is a prominent ridge, topped with six warty processes, each bearing a seta.

On the caudal segments are two short processes, one each side of the median line, each tipped with a seta.

At various other areas on the body are low warty nodules (well defined in the accompanying illustration, Plate 47) which further heighten the resemblance of this larva to a twig.

Legs and prolegs concolorous with body. Spiracles gray, heavily rimmed with black. Numerous setae arise from small gray nodules at various points on the body surface.

Head: The lobes are protruded forward and slightly upward into two sub-pyramidal crests, which are concolorous with body but spotted with black. Ocelli, black.

The larva spins a loosely woven cocoon. This may be on the foodplant or among the debris on the ground.

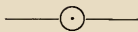


PLATE 47

Mature larva of *Aethaloida packardaria* Hlst., resting on twig of *Ceanothus*. Enlarged approximately x 2.

The species ranges from southern California northward to Oregon, or perhaps beyond. We have examples from Flagstaff, and from the White Mountains, Arizona. It is not unlikely that three broods occur in a year, as our series records captures in February, June, July and December.

Dr. McDunnough lists *Selidosema lachrymosa* Hlst., and *Selidosema homopteroides* Hlst., as synonyms of *Aethaloida packardaria* Hlst.

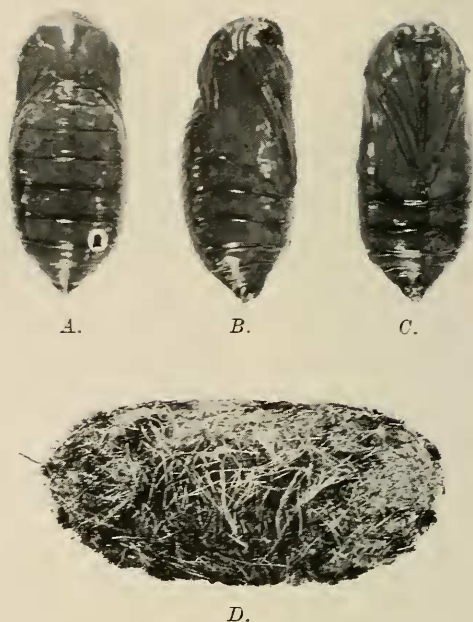


*Halisidota ingens* Hy. Edw. of which Stretch's *scapularis* is a synonym, ranges through Arizona into New Mexico and, according to Neumoegen and Dyar<sup>4</sup> into the Rocky Mountain region.

A single larva of this species was picked up by the writer in mid July of 1935, on the Greer Road, White Mountains, Arizona.

This specimen began to spin a cocoon immediately, and the notes that were made of it at the time were necessarily somewhat sketchy.

<sup>4</sup> Journ. N. Y. Ent. Soc. III, 172, 1893.



#### PLATE 48

Pupa and cocoon of *Halisidota ingens* Hy. Edw. enlarged approximately x 2.

A. Pupa, dorsal aspect.    B. Pupa, lateral aspect.  
C. Pupa, ventral aspect.    D. Cocoon.

In late June of 1937, Mr. Robert H. Andrews secured a few larva, some of which were found on iris. This may be the food-plant of the species, although none of the larvae was observed to feed.

All had begun to spin before they reached our laboratory.

Three examples emerged July 5, 1937. The larvae were secured near Alpine, White Mountains, Arizona.

Mature larva: Thickly covered with hair of varying colors and lengths. There are several tufts of thick, short brick-red hairs on the median portion of thoracic area; also several long bundles of black hairs toward the front and anal areas. A thick covering of mixed grayish-white and black hairs occurs over the body.

The cocoon is compactly and evenly woven, and may be recognized by the mixture of body hairs that are incorporated in it. This is illustrated in the lower figure on Plate 48. This same

plate also shows the pupa. For purposes of comparison we also illustrate the cocoon and pupa of *Halisidota maculata agassizi* Pack., on Plates 50 and 51. It will be noted that the pupa of *H. ingens* is considerably more contracted throughout the thoracic area.

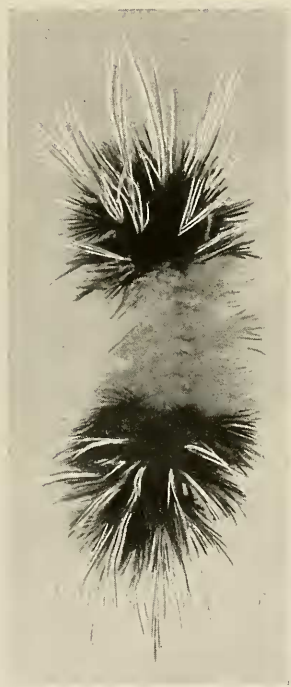


PLATE 49

Typical larva of *Halisidota maculata*  
*agassizi* Pack., enlarged x 2.

With regard to *Halisidota maculata agassizi*, Dyar has already remarked on the extreme variability of the larva.<sup>5</sup> The common type found in the region of Los Angeles has the anterior four segments and the posterior three or four predominantly black, with an interposed yellow area. The long pencils, anteriorly and posteriorly, are white, and the short mid-dorsal tufts black.

<sup>5</sup> Psyche, VI, p. 324, 1892.





A.

B.

PLATE 50

Larva and cocoon of *Halisidota maculata agassizi* Pack.

A. Mature larva, of unusual white form, dorsal aspect.

B. Cocoon, showing inclusion of white hairs.

All figures enlarged approximately x 2.

Our illustration, Plate 50, shows a variety which is not mentioned by Dyar, in which practically all of the hairs are white, the only exception being the much reduced mid-dorsal tufts of black. The common type of larva is shown on Plate 49.

The pupa of *H. maculata agassizi* is a rich chestnut red, and the average length is 20 mm.

Foodplants: willow, poplar and alder.



*Halisidota argentata subalpina* French. Mr. R. H. Andrews also secured a number of larvae of this subspecies, near Williams, Arizona, not far from the Grand Canyon. These were feeding on Juniper.



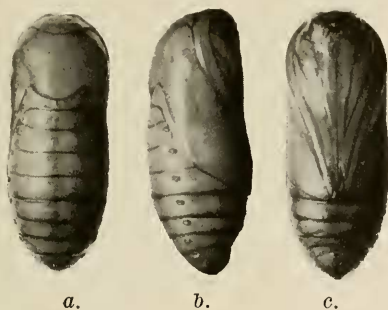


PLATE 51

Pupa of *Halisidota maculata agassizi* Pack.

enlarged approximately  $\times 1\frac{1}{2}$ .

a. Dorsal aspect. b. Lateral aspect. c. Ventral aspect.

We compared these with Henry Edward's description of the larva of *H. argentata*<sup>6</sup> and found that in practically all particulars they were the same. Dr. Dyar states that the larva is unknown<sup>7</sup> but remarks on the similarity of the mature insect to *H. argentata*.

We illustrate the mature larva on Plate 52.



PLATE 52

Mature larva of *Halisidota argentata subalpina* French,  
shown in dorsal aspect, enlarged.

<sup>6</sup> Proc. Calif. Academy of Sci., Sept. 1874.

<sup>7</sup> Can. Entom., vol. 24, p. 305, 19, 1892.

*Gnophaela clappiana* Holl. This species was first described by Dr. Holland<sup>8</sup> from the mountains of Williams River, Colorado. It is evidently somewhat more common, though never abundant in the mountains of Arizona.

While collecting along the Greer Road, White Mountains, Arizona, in 1935, a highly colored larva was found on my butterfly net. An effort was made to feed it on several local plants, but without avail. The specimen was apparently in about the penultimate instar. It was successfully photographed, and a brief description drawn up for future reference. The caterpillar was collected June 26, and lived until July 8 without moulting.

In the summer of 1937, Mr. Robert H. Andrews brought us a second larva from Williams, Arizona. It was fully matured, and had started to spin a cocoon. This example emerged on July 1, 1937.

Mr. Andrews was unable to definitely name the plant on which the larva was taken.

Larva, probably in penultimate instar.

Head, shining dark maroon, the sutures slightly lighter. Ocelli tinged with black. Mouth parts edged with black. There are a few short black hairs scattered over the head.

Body: In the mid-dorsal line there is a row of bright yellow triangles, placed longitudinally, their tips conjoined, and their bases resting on the segmental junctures. Lateral to this is a row of large warty double tubercles of a glistening steel-blue color, each one topped with a tuft of moderately long hairs. The majority of these hairs are black, but a few are light straw. Between these tubercles is a patch of velvety dull black, which, with the tubercles gives the appearance of a wide longitudinal black band. Latero-inferior to this is a narrow bright yellow line, interrupted with black below each tubercle.



PLATE 53

Larva of *Gnophaela clappiana* Holland,  
lateral view, enlarged.

<sup>8</sup> Ent. News, II, 156, 1891.

Inferior thereto is another line of single large steel-blue tubercles, tufted similarly to those of the first line. Below this is a wide band of yellow formed by a series of triangles with their apices on each segmental juncture. Below this is a third line of slightly smaller steel-blue tubercles, similar to the others.

Legs black; prolegs and anal prolegs black at the base, maroon on the distal third, with black claspers.

Abdomen striped with yellow. Plate 53 illustrates the larva.

A loosely woven cocoon was formed.

Pupa: Length, 20 mm. The predominant color is a shining black, with several rows of more or less irregular yellow spots disposed as shown on the accompanying illustration, Plate 54.

One of the most characteristic features of this chrysalis is the bundle of hooklets placed at the cremasteric end, and also the several small bundles of similar hooks on the anterior end of the thorax and head, thus serving to give a double anchorage in the cocoon.

The chrysalis turned a solid black just before emergence of the imago.

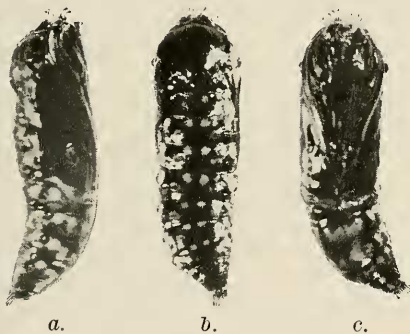


PLATE 54

Pupa of *Gnophaela clappiana* Holland, enlarged x 2.

a. Lateral aspect. b. Dorsal aspect. c. Ventral aspect.



*Oidaematophora longifrons* Wlsh. Larvae of this species were found on *Perezia microcephala* (D. C.) Gray. They were fairly abundant in the upper Cajon Pass, San Bernardino County, on June 14, 1937.

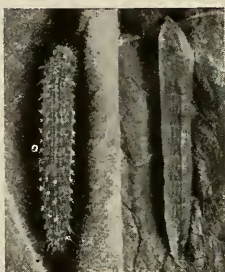
Mature larva: Length 12 mm.

The body is predominantly light green, and bears several

narrow longitudinal white lines, alternating with rows of raised nodules which are topped by short white bristles. Some of the latter have a small black tip at the point of junction of the bristle with the nodule.

The median white line is the most clearly defined. The row of nodules occurring along the infrastigmatal fold bears a greater number of bristles than any of the others. This larva is illustrated on Plate 55, fig. *A*.

Pupation occurs on the leaf of foodplant, the pupa being actually longer than the mature larva.



A. B.

PLATE 55

Larva (*A*) and  
pupa (*B*) of  
*Oidaematophora*  
*longifrons* Wlshrn.  
enlarged approxi-  
mately  $\times 2\frac{1}{2}$ .

Pupa: Length, averaging about 14 mm. Color, at first a clear green, changing later to wood brown with darker markings. The anterior end is rather acutely pointed; posterior end gradually tapering. Fine longitudinal pencilings, suggestive of the light lines of the larva are usually present, or at least faintly indicated. Plate 55, fig. *B* illustrates the pupa.

On the same species of plant there were found quantities of the larvae of *Choreutis gemmalis* Hlst. This larva eats away the green parenchyma and one layer of the epidermis of the leaf, leaving only a thin transparent membrane. It particularly seems partial to the central portions of the leaf. A fine network of webbing is spun, which includes a tunnel-like structure, running parallel with the midrib. In this tunnel the larva pupates. When it is about ready for emergence the pupa pushes forward to the end of the tunnel and its fore-portion is extruded, so that the moth will be free to exit without having to traverse any of the tunnel.

It is easy to note a plant of *Perezia* which is infested with the above larvae, as it has a seared and curled appearance.

The imago has a rather weak flight. When it is at rest, the wings are held in a peculiar arched or semi-folded manner which gives the appearance of the moth having freshly emerged, and the wings having only partially expanded.

For determinations on the above two species of moths we are indebted to Dr. August Busck of the National Museum.

An ichneumon of the genus *Epitomus* was bred from *Choreutis gemmalis*.

A NEW FORM OF *Hesperumia sulphuraria* Pack. This common and well known moth was first described by Packard<sup>9</sup> from examples taken in Maine, and was later described by the same author as *ochreata* from Californian examples. In his Monograph of the Geometrid Moths, Packard acknowledges the synonymy of *ochreata* and reproduces a figure on Plate XI, fig. 47. This figure, together with his description on p. 477 of the same work shows the typical form to be that with the "very large orbicular brown discal ring" and the two incomplete lines or rows of spots crossing the wing from the costa to the hind margin, one of these rows being internal and the other external to the discal ring.

Hulst, in 1880<sup>10</sup> described *Rumia baltearia* which is that form in which there is on the fore wings "a broad band of brown occupying one-fourth their area in length; this is angulated outwardly on its inner margin, and waved outwardly and irregularly on its outer margin. It extends at an almost uniform width half way across the wings, then suddenly becomes reduced in width, and thus extends to posterior margin." His types were from Minnesota and Colorado.

The same author described, in 1886,<sup>11</sup> still another form, "*Rumia ochrearia* var. *unicoloraria*" which "differs from the type form in being of a clear bright yellow, without any markings whatsoever."

All of the above forms, with their intergrades, occur in California, and in addition there is an extreme variation to which no published description can possibly apply. I have bred this form along with all the other named varieties from *Ceanothus*, *Adenostoma* and *Cercocarpus*. Dr. McDunnough, to whom I submitted specimens, has kindly suggested that I give it a name. Accordingly I propose:

*Hesperumia sulphuraria* f. **fumosaria** f. nov.

Same size and shape as typical *sulphuraria*. Ground color of primaries and secondaries light cream on both upper and under surfaces. Over this cream color is a heavy suffusion of brown, having a suggestion of purplish in it. This brown color is spread almost uniformly over both surfaces of both wings, although there is a little tendency in some examples for it to thin out at the base of the primaries and on the inner third of the secondaries. There are no spots or lines on any of the wings, either on superior or inferior surfaces, except for a slight suggestion of darker scaling at the end of the disc of primaries, in

<sup>9</sup> Fifth Rep. Peab. Acad. Sci. 79, 1873.

<sup>10</sup> Bull. Brook. Ent. Soc. III, p. 43.

<sup>11</sup> Entom. Amer. I, p. 208.

a few examples. Fringes, purplish-brown. Thorax and abdomen, cream color, sparsely flecked with brown scales.

Described from 8 ♂ ♂ and 7 ♀ ♀ as follows:

Holotype ♂, Bouquet Canyon, Los Angeles County, Calif., June 14, 1937, bred from larva collected on *Adenostoma*.

Allotype ♀, Bouquet Canyon, Los Angeles County, Calif., June 21, 1937.

Paratype No. 1, ♂, San Diego, Calif., May 2, 1920, from collection of Karl R. Coolidge.

Paratypes Nos. 2 to 5, ♂ ♂, Bouquet Canyon, Los Angeles County, Calif., June 21, 1937.

Paratypes Nos. 6 and 7, ♂ ♂, Bouquet Canyon, July 7, 1937.

Paratype No. 8, ♀, Bouquet Canyon, June 14, 1937.

Paratypes Nos. 9 and 10, ♀ ♀, Bouquet Canyon, June 21, 1937.

Paratypes Nos. 11 to 13, ♀ ♀, Bouquet Canyon, July 7, 1937.

Holotype, allotype and a series of paratypes in the collection of the Los Angeles Museum.

A paratype will be deposited in each of the following museums: U. S. National Museum; Canadian National Museum at Ottawa; British Museum, South Kensington, London, England; Museum of the California Academy of Sciences, San Francisco, Calif.

Commander Dammers and the writer have given an incomplete account of the early stages of *Hesperumia sulphuraria* in the Bulletin So. Calif. Academy of Sciences, Vol. 33, No. 1, p. 31, 1934. As an additional aid in identifying the larva a photograph is shown on Plate 56.

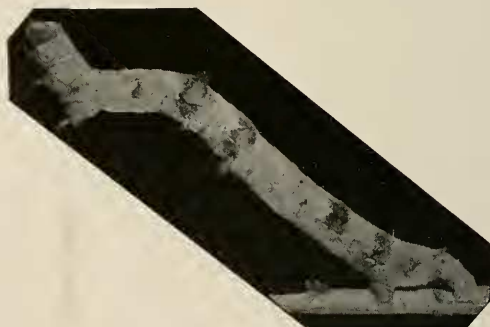


PLATE 56

Mature larva of *Hesperumia sulphuraria*,  
enlarged approximately x 2.